Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

be too bold, however, to maintain, except as a postulate of faith (similar in principle to those of religion, though, perhaps, on the whole more consistently workable) that the categories in any constitutive or representative fashion interpret the universe as it exists apart from its interaction with human organisms. Surely the social subjectivism, if such it be, of this form of pragmatism deserves commendation for honestly confessing that there are limits to possible knowledge, and for not, like certain rival forms of contemporary philosophy, advancing specious arguments based on the impossibility of doubt, the ego-centric predicament, and the like, and claiming that our human categories are laws of things in themselves.

WILLIAM K. WRIGHT.

CORNELL UNIVERSITY.

DISCUSSION

THE LAW OF THE RESTING POINT

IN a recent paper[1] Dr. Hollingworth has advanced a most interesting principle of normal perception which he calls the law of the resting point. The facts he adduces in favor of this principle seem to me to be, in the main, both accurate and significant. Their bearing upon the theory of perceptive processes is less obvious than their relation to the technique of the pictorial arts; but that they do throw light upon the former, I can not but believe.

I am inclined to conjecture, though, that they do not throw the particular illumination which Dr. Hollingworth turns on. And I wish here to discuss his interpretation of his data because I believe that it supplies us with an exceedingly sharp contrast between two radically different modes of psychological explanation. The mode chosen by Dr. Hollingworth enjoys almost universal popularity to-day among psychologists; the other mode is utterly discredited. Now, I should like to make clear that, in the present instance at least, all the advantages lie with this second despised mode.

The two modes may be briefly described as follows. The accepted and orthodox one explains a process in terms of its machinery, whereas the other one explains a process primarily in terms of the situation with which the machinery has to deal. In other words, the first mode presupposes that a process is what it is because of the build of its engine; while the second mode presupposes that there is an engine which owes its character, at least in large measure, to the character of the stuff and complication which the engine encounters. Please note that both modes rest upon presuppositions. And please note also that, by virtue of this fact, the scientists' ultimate problem concerns the utility of these same primitive assumptions. This should not be lost from mind, inasmuch as the champions of the first mode have the habit of urging in its favor that it is purely empirical, resting upon no metaphysical proposition.

---

[1] "A New Experiment in the Psychology of Perception," this JOURNAL, Vol. X., page 505.

Let us now consider Dr. Hollingworth's facts and his interpretation of them. "*To suggest activity pictorially,*" he says, "*the moving object must always be caught at an actual point of rest; to suggest pose or arrest it must be caught at a point of actual motion.*"[2]

"The amateur usually makes the mistake of supposing that to suggest motion, let us say the motion of a horse trotting, the foot of the animal should be represented in the middle of its course. Nothing is farther from the truth. To suggest action effectively, the foot must be caught at one of the two resting points—either at the initial point, before the beginning of the movement, or at the final point, midway between extension and return."

I am quite certain that Dr. Hollingworth has here touched upon a valuable discovery. I am equally sure that he has overlooked some important features whose omission must seriously alter the general proposition. But I shall not dwell upon the omission until I have considered the main issue. This main issue is squarely presented in Dr. Hollingworth's interpretation of his facts.

"The explanation is simple. The perception of activity is a typical illustration of the process of interpreting a situation in the light of earlier experiences, associations, and memories. The eye can not see while it itself is in motion. Vision is achieved at points of rest, at least the clearest vision is. Because of difficulties of accommodation, adjustment, etc., our clear visions of moving objects come at the moments in which the objects are temporarily at rest. Only when objects are inactive or in attitudes of pose do we ordinarily get clear visual impressions of them in the middle of a conceivable course of movement. Our interpretation of pictorial representations of objects proceeds in terms of these past experiences."

Here we find a straightforward example of the first mode of interpretation. We see clearly when our eyes are at rest; hence we perceive a moving object best when it is at rest. So far, so good, perhaps; but how about the converse instance, the perceiving of a resting object? According to the original law of resting points, we ought never have so clear a perception of a motionless object as we have of a moving one; for we must perceive the still object at a point of *actual motion,* whereas the eye must, at this moment of the object's actual motion, be at rest in order to secure a clear image. There is another way of stating my difficulty. If the eye best perceives when it itself rests, I can understand why the moving object is most advantageously depicted (imaged) at one of its resting points; but I can not see why a resting object should not also be depicted when at rest, and by the very same arguments. As a matter of fact, I believe that it is best exhibited or fancied when it is seen or thought of in a state of rest. If the process of perceiving rest and motion is to be explained in terms of the eye machinery, ought we not say that we best perceive motion *and* rest at instants when the eyes rest? But let us do this, and Hollingworth's new law collapses. For now we must admit that the eye rests frequently in following the course of a moving object, and hence has clear visions of it during its trajectory, and hence need not wait for clarity until the object has itself reached an instant of rest.

---

[2] Page 508.

That we do secure *clear* images[3] of moving things during their flights is indisputable. I have never found the slightest vagueness in those stiff and often ludicrous cinematographic records depicting the rigid, straight leg of the pedestrian or the clumsy twist of the trotting horse. I perceive the man as a walking man, the horse as a trotting horse. They are not ambiguous, they are not falsifications. And this, I take it, indicates that I do genuinely perceive men and horses at such awkward instants in their movements. Nevertheless, as Hollingworth correctly insists, these are not the postures which are most effectively chosen to illustrate, either in memory or in some artistic form, the pedestrian or the trotter. But why not? The query can best be answered after I have criticized the orthodox mode of explanation and suggested the merits of the heterodox one.

All the difficulties into which Dr. Hollingworth falls arise, I think, from his prior acceptance of modern psychology's dogma of the engine, if I may be allowed the phrase. Once commit yourself to the presupposition that the peculiarities of perceiving are due *fundamentally* to the structure of the perceiving mechanism, and there is no escape from a host of intolerable obscurities. You may, of course, safely and profitably assume that those peculiarities are, in some measure, due to this mechanism; the peril sets in only when the mechanism is looked to for the first and basic explanations of its own behavior. What this peril is, appears in the inadequacy of Dr. Hollingworth's account of the perceiving of still objects. And to shun it, we have only to choose some other primary presupposition.

Now I shall not attempt to enumerate and test all possible presuppositions, which are many. I shall merely employ one which, in my opinion, is not absolutely inadequate, but nevertheless is much more fruitful than the dogma of the engine. I choose it here because it affords the sharpest contrast to Dr. Hollingworth's explanation.

---

[3] I am here using the term ''image'' conventionally.

It is the quasi-rationalistic assumption already described. Let us see how it works.

The perceiving process, according to this assumption, derives its manner predominantly from the objective situation wherein the organism finds itself and toward which it "endeavors" to take a certain attitude, or in which it "seeks" to accomplish something. Now, what is the situation in the present instance? And what is to be accomplished? There is an object in motion which has been seen. The observer resolves to play a game with this object. If he is an artist, it is a two-handed game. He endeavors to accomplish two things at a single instant, *i. e.,* give a *single static* image of it. And this single static image shall be that one which *most effectively* represents the object and its motion to another person. You must observe carefully these two rules of the game. It is their combination which gives us the clue to the technique of both imagery and pictorial art.

The artist's question then is simply this: which single static image is most successful in suggesting the object and its particular motion to a second person? And the answer is to be found in some of the *facts* which Dr. Hollingworth adduces, but not in the theory which he adds to them. The moving object is very frequently (but not always) best depicted at an actual point of rest; and the resting object is most forcibly exhibited not at a point of *actual* motion, but at a point where the object would be in motion, *were it not interrupted.* Dr. Hollingworth's illustrations of this, drawn from classical art and from his valuable and original laboratory experiment, confirm so conclusively the account I give that I can only refer the reader to his article.

How, now, shall the explanation run? Why, very simply, indeed! *Effective imagery, mental and artistic alike, follows the real situation most faithfully, under the rules of the game.* The first rule of the game is that one and only one image shall be used to represent the object. Well, if the image must be one and therefore static, is it not evident that the one image that most faithfully and successfully represents a moving object would represent the object at that point where it is *really* at rest? That image does less violence to facts. The pedestrian's leg is approximately still at the instant of touching or of leaving the ground; and it is still at no other moment. To represent the leg at another instant, then, would be to represent it as still when it is really moving. Such a picture might be *clear;* indeed, it almost always is. But it would not be *effective,* because it would falsify the objective situation.

Likewise with the depicting of a still object, though here another consideration occasionally enters. If you depict a horse with both forelegs in the air and the neck low, you give a picture which falsifies; for the animal in this position is really galloping full tilt. We doubt-less see horses in that position; but *when we do, we do not see them halt there.* Hence it is that, when we see a picture of a horse at such an instant of flight, we see thwarted motion; and this is the most aggravated variety of rest. It is not simple repose. It is the immobility of terrific tensions in equilibrium.

Several very interesting matters involved in this matter deserve discussion; and not the least among them is that of the hurdler. I think that many observers will agree that the instant of clearing the hurdle is most effective in depicting the activity. But this instant is one of motion, not of rest. How then shall we square it with the explanation just advanced? I think we must say that, under the rules of the game, this is a type of activity which can be adequately depicted by no *real* instant of rest, and hence the most characteristic instant of motion is chosen. But I do not wish to argue the point now. I desire only to emphasize what I regard as the most important theoretical consideration involved in Dr. Hollingworth's suggestive study. The dogma of the engine, so highly favored by our contemporary psychologists, drags its followers into grievous perplexities and artificial conjectures. The derided dogma of the adaptive agent, on the contrary, supplies us with a simple common-sense explanation in a host of cases, and, what is much more decisively in its favor, it can explain those very behaviors of the engine which the adherents of the other dogma use to explain such things as the perception process.

This advantage is remarkably clear in the present instance. Dr. Hollingworth explains the law of the resting point by the pretty well established facts that the eye moves in jerks while following a moving object, and that clearest vision occurs at the rest instants. But the psychologist who accepts the dogma of the adaptive agent can explain these explanations. Suppose that there is an environment. Suppose that in it there are things moving about in physically continuous paths. Suppose that the space of these paths is essentially as the ordinary man and the geometer find it to be. Suppose that light is, too. Then a multitude of propositions follow. Complete definition in a field involves and depends upon a unique determination in space and time; an object, in other words, is least ambiguous (*ceteris paribus*) when its locus and moment are given. This is true not merely in abstract calculation, but none the less in perception. Therefore, the eye sees most determinately when it sees an object at a single place in a single instant. Now suppose that the eye follows a moving thing. The eye does not know in advance the thing's path. In fact, the eye knows nothing whatever. How, then, could it follow continuously the object? The object advances from s to s', being in s at t and in s' at t'. What advance shall the eye make? Shall its line of vision go from s to s'? It may happen to, but certainly this move is only one of indefinitely many possible moves. Mathematically, the chances of its moving to some other point are indefinitely great. And logically there is no reason why the move should be from s to s'. Thus it comes about that *the eye actually follows a trajectory in a series of discontinuous tangentials and by the well-known method of trial and error.* As the object moves, the line of vision shifts, usually to some point whither the object does not go. In a very short time this deflective move is checked by off-center vision of the object, as it progresses in some other direction than that taken by the eye. And the eye returns to catch the trial.

All this, I would urge, is the only conceivable mode of perception, if the objective situation really is as geometry and physics and biology describe it. And it explains both the eye's behavior and our preference for the *real* resting points as symbols of a moving thing.

WALTER B. PITKIN.

COLUMBIA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Fortschritte der Psychologie und ihrer Anwendungen. 1 Band, VI Heft. KARL MARBE. Inhalt: (1) *Psychologische Gutachten zum Prozess wegen des Müllheimer Eisenbahnunglücks.* Pp. 35. (2) *Kinderaussagen in einem Sittlichkeitsprozess.* Pp. 22. Leipzig: Verlag von B. G. Teubner.

Here are some practical applications of psychology which may have, in their future development, an even more direct bearing upon social welfare than those commercial applications so interestingly commended by Professor Münsterberg in his recent book.

Dr. Marbe, director of the Psychological Institute at Würzburg, was called in as an expert in two cases here reported together, but widely different in character, as their titles will indicate. In the railroad case he was called in by the prosecution; in the other, by the defense. In both cases his side won the verdict. Moreover, it is evident to any one who will read the reports that his expert knowledge was of great importance in influencing the judgment of the court. Insanity experts have become a byword among us. Some would pray to be delivered from a new set of psychology experts; but if all can be as sane and as restrained as Professor Marbe we need not fear.

Case one is concerned with a railroad accident at Müllheim, Baden, when fourteen people were killed, many injured, and much property was destroyed. Contrary to expectation in such cases, the locomotive engineer, the fireman, and the guard (Zugfahrer) were not killed. Their examination upon the subject of the accident began at once.

In general outline the accident is known to all of us through similarity to railroad accidents in the United States. It was the old story of run-